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EXAMINER: Pritchard, J. L.

TITLE: HEADPHONE FOR SPATIAL SOUND REPRODUCTION

Amendment A: SPECIFICATION AMENDMENTS

On pages 7 and 8, revise paragraph [0041] as follows:

A sound signal may be broken down into a sum of sinewave signals. By space-time analogy, the sampling distance between two loudspeakers of the sound signal should be smaller than half the wavelength of this signal. If the limiting wavelength may be considered as the shortest wavelength of the signal, i.e. the limiting frequency is the highest frequency of the signal, the following is obtained:  $\Delta l < 1/2 \lambda$ , where  $l$  is the distance between two loudspeakers (or microphones) and  $\lambda$  is the shortest wavelength of the signal.

On page 8, revise paragraph [0044] as follows:

As illustrated on the different Figures, a headset 1 is obtained, comprising two headphones 2, each headphone comprising at least five loudspeakers disposed on a bracket 3, 4. Said bracket 3, 4 defines at least partially a cap-shaped surface, capable of surrounding the listener's ear 6 5 totally.

On page 8, revise paragraph [0047] as follows:

Said headphone 2 may be open or closed. If it is open, said hemispherical surface is not materialised partially by the bracket 3, 4. If it is closed, the bracket 3, 4 materialises said hemispherical surface completely.

On page 9, revise paragraph [0049] as follows:

Said bracket 3 is constituted of a ring 3 in particular to which are attached two cambered bands 4, namely, a horizontal band 42 and a vertical band 43. Said cambered bands 4 42 and 43 form a cross. Moreover, they are drilled with orifices 41, capable of receiving said loudspeakers 44.

On page 9, revise paragraph [0050] as follows:

The orifices 41 are distributed regularly, so that the distance between two adjoining

loudspeakers is smaller than or equal to 3 cm, for a maximum frequency of the sampled signal of 5 kHz. The diameter D of the ring bracket 3 is, in this example, 8 cm.

On page 9, revise paragraph [0051] as follows:

Each cambered band 42, 43 is fitted with an orifice 41 at the intersection point of both bands, as illustrated on the different Figures. For example, the horizontal band 42, comprises four orifices 41 spaced apart by an angle of  $360^\circ$  relative to one another; the vertical band 43 comprises three orifices 41 spaced apart by an angle of  $45^\circ$  relative to one another. Thus, the headphone 2 may accommodate six loudspeakers, one of them at the intersection of ~~two supporting the~~ bands 42, 43.

On page 9, revise paragraph [0054] as follows:

For example, as illustrated on Figures 4 and 5, the headphone may include eight loudspeakers 44. Top left on Figures 4 and 5 are represented a plan view of both these variations and, around the plan view, sectional views along the lines AA', BB', ~~CC', A'V', B'B', C'C'~~ CC', A'A', B'B', C'C'. In these examples, the headphones are hemispherical.

On page 10, revise paragraph [0058] as follows:

Advantageously, the external circle 31 and internal circle 32 are substantially parallel to the plane defined by the ring bracket 3 and are situated beneath an angle of  $30^\circ$  ( $\pi/6$  rad) and of  $60^\circ$  ( $\pi/3$  rad) with respect to the centre 33 of the hemisphere.

On page 11, revise paragraph [0062] as follows:

According to a first variation of the invention, a headset 1 is fitted with open headphones, as illustrated on the different Figures. In this case, the bracket 3-4 is formed of an open armature, capable of receiving the loudspeakers. From an acoustic viewpoint, it means that the listener may hear a sound transmitted by the loudspeakers, without deformation, nor attenuation.

On page 11, revise paragraph [0066] as follows:

Said headphones 2 may exhibit diverse additional features. For example, the ring bracket 3, i.e. the listener's zone in contact with the listener's head, may be fitted with a foam ring, for enhanced comfort of the listener 6 when wearing the headset.

On page 11, revise paragraph [0067] as follows:

The elements of the bracket 3-4 are composed for example of aluminum or another lightweight metal or still plastic.